

CLAIMS

1. A refrigeration device (1, 101, 201), comprising:

a main refrigerant circuit (10, 110, 210) having a compressor (21), a heat source side heat exchanger (24), and a user side heat exchanger (52); and

5 an auxiliary refrigerant circuit (42, 242) arranged between the compressor of the main refrigerant circuit and the user side heat exchanger, and which can return a portion of the refrigerant that is compressed in the compressor and sent to the user side heat exchanger to the main refrigerant circuit after being condensed.

10 2. The refrigeration device (1, 101, 201) disclosed in claim 1, wherein the auxiliary refrigerant circuit (42, 242) comprises a branching circuit (42a) that serves to branch a portion of refrigerant compressed in the compressor (21) and sent to the user side heat exchanger (52) from the main refrigerant circuit (10, 110, 210), a condenser (42b) that can condense the branched refrigerant, and a
15 junction circuit (42c) that can return the condensed refrigerant to the main refrigerant circuit.

3. The refrigeration device (1, 101, 201) disclosed in claim 2, wherein the auxiliary refrigerant circuit (42, 242) further comprises an open/close mechanism (42d) that can propagate/cut-off the flow of refrigerant to the
20 condenser (42b, 242b).

4. The refrigeration device (1, 101, 201) disclosed in claims 2 or 3, wherein a pressure detection mechanism (42e) is provided on the main refrigerant circuit (10, 110, 210) or the auxiliary refrigerant circuit (42, 242), and serves to detect the refrigerant pressure between the condenser (42b, 242b) and
25 the user side heat exchanger (52).

5. The refrigeration device (1, 101, 201) disclosed in any of claims 2 to 4, wherein the auxiliary refrigerant circuit (42, 242) further comprises a bypass circuit (42f) that can bypass the condenser (42b, 242b) and propagate refrigerant from the compressor (21) to the user side heat exchanger (52); and

5 the main refrigerant circuit (10, 110, 210) further comprises a check mechanism (44) between a connector of the branching circuit (42a) of the main refrigerant circuit and a connector of the junction circuit (42c) of the main refrigerant circuit, and which allows only the flow of refrigerant from the user side heat exchanger to the compressor.

10 6. The refrigeration device (201) disclosed in any of claims 2 to 5, wherein the condenser (242b) is a heat exchanger that uses refrigerant that flows inside the main refrigerant circuit (210) as a cooling source.

15 7. The refrigeration device (1, 101, 201) disclosed in any of claims 1 to 6, wherein refrigerant that flows in the main refrigerant circuit (10, 110, 210) and the auxiliary refrigerant circuit (42, 242) has saturation pressure characteristics that are higher than those of R407C.